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Flynn

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(54) **SADDLE RACK AND HARNESS RACK LIFT**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 401 days.

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(22) Filed: **Dec. 14, 2005**

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(51) **Int. Cl.**
A47F 7/00 (2006.01)

(52) **U.S. Cl.** **211/85.11**

(58) **Field of Classification Search** 211/85.11, 211/1.51, 1.57; 108/94–96, 102, 103, 105, 108/108, 141, 147.11, 106
See application file for complete search history.

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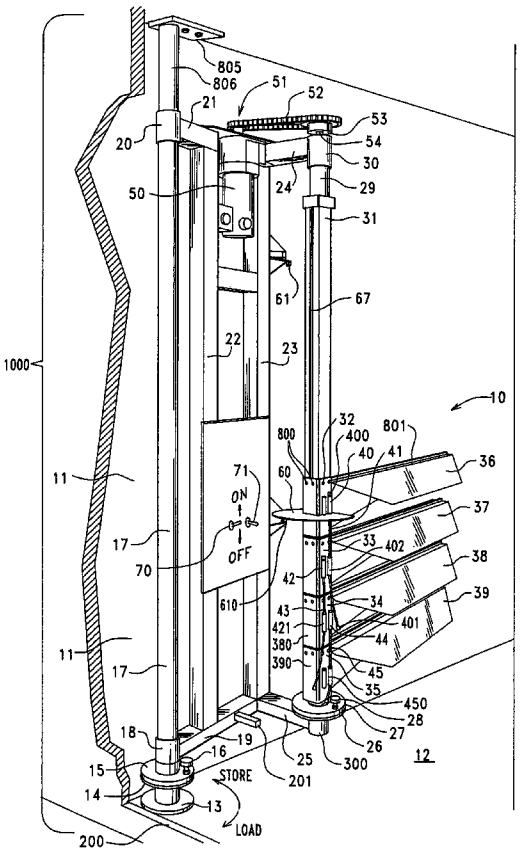
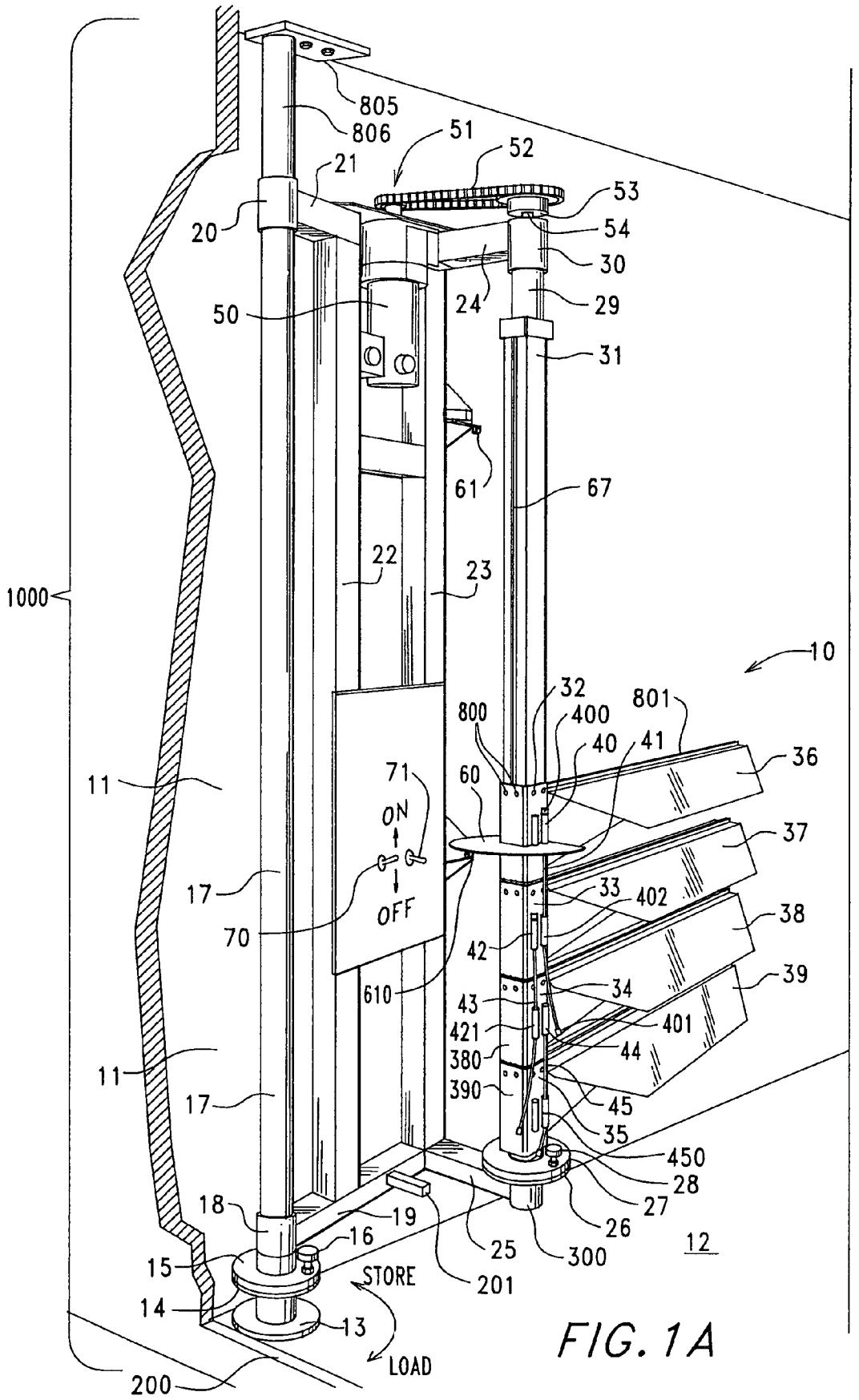
(57) **ABSTRACT**

Heavy saddles can be loaded at waist height onto a vertical array of saddle racks. The vertical array is mounted on a central post containing a powered gear which lifts in sequence first the uppermost saddle rack and then each one below. A trailer model provides a swing out chassis for the central post with a load position and a storage position. A non-pivoting embodiment is shown. A retail store tree style lift rack is also shown as is a harness rack version.

12 Claims, 12 Drawing Sheets

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806
51
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50
31
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22
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801
800
400
40
41
36
11
71
60
ON
37
17
33
402
OFF
38
70
42
39
610
34
43
401
421
44
11
380
17
390
45
35
450
28
18
19
27
16
26
12
15
25
300
STORE
201
14
13
LOAD
200

FIG. 1A

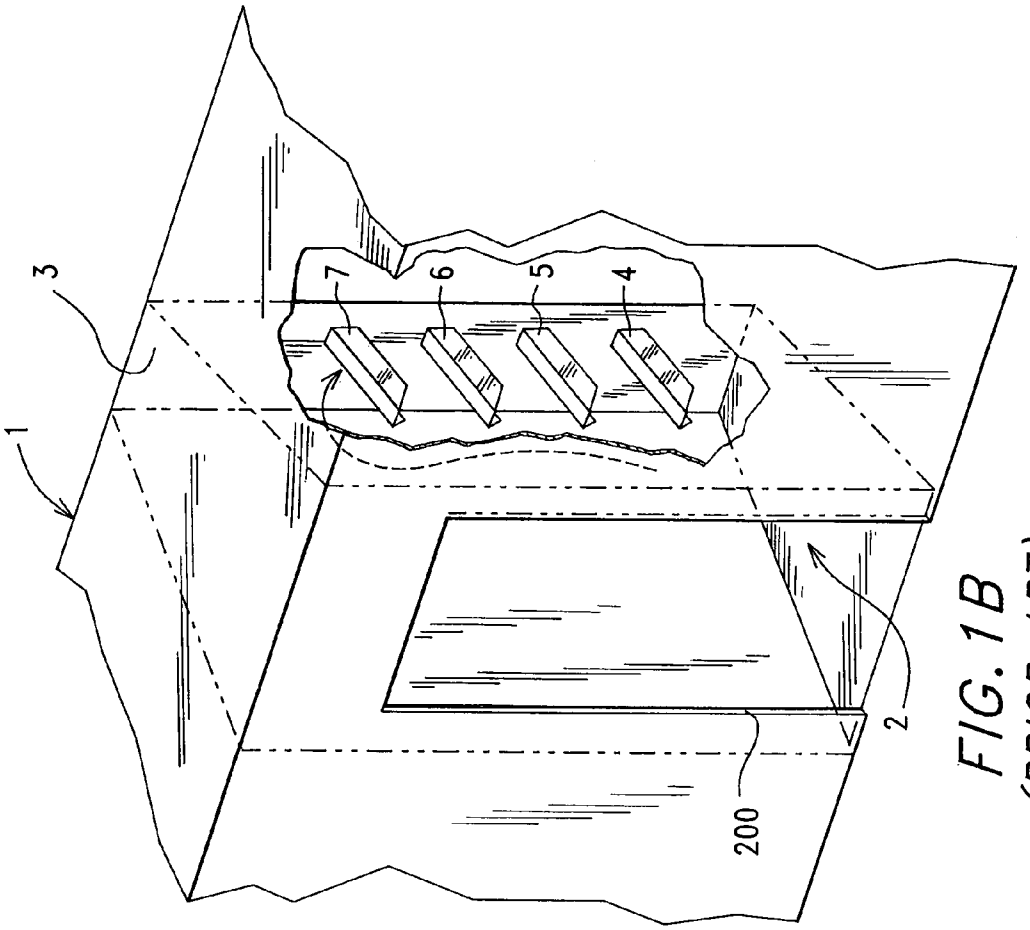


FIG. 1B
(PRIOR ART)

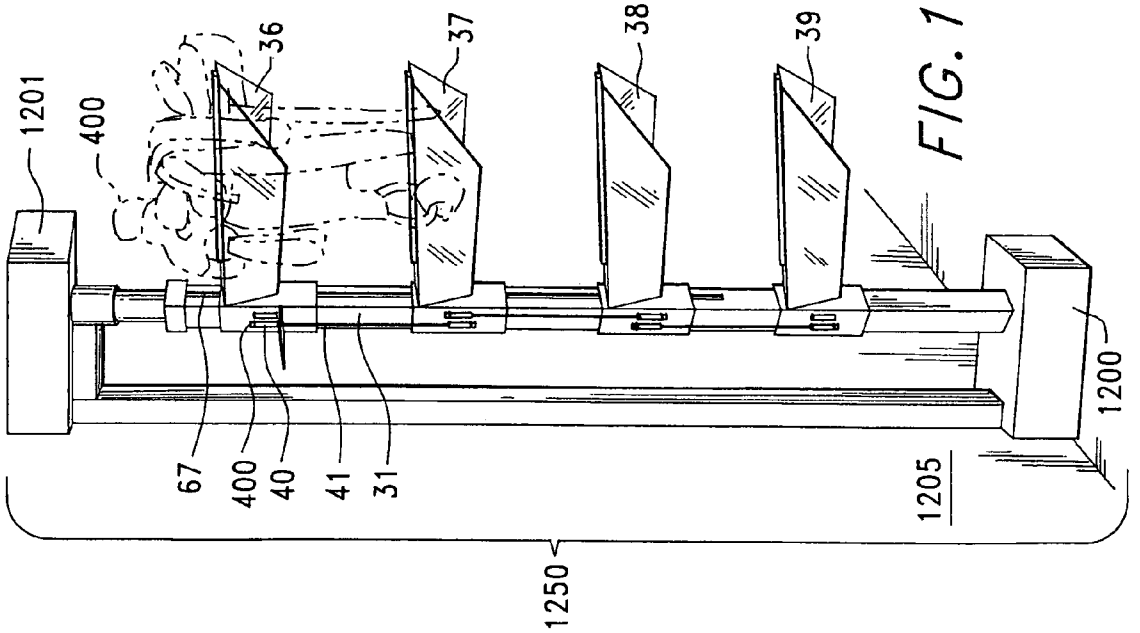
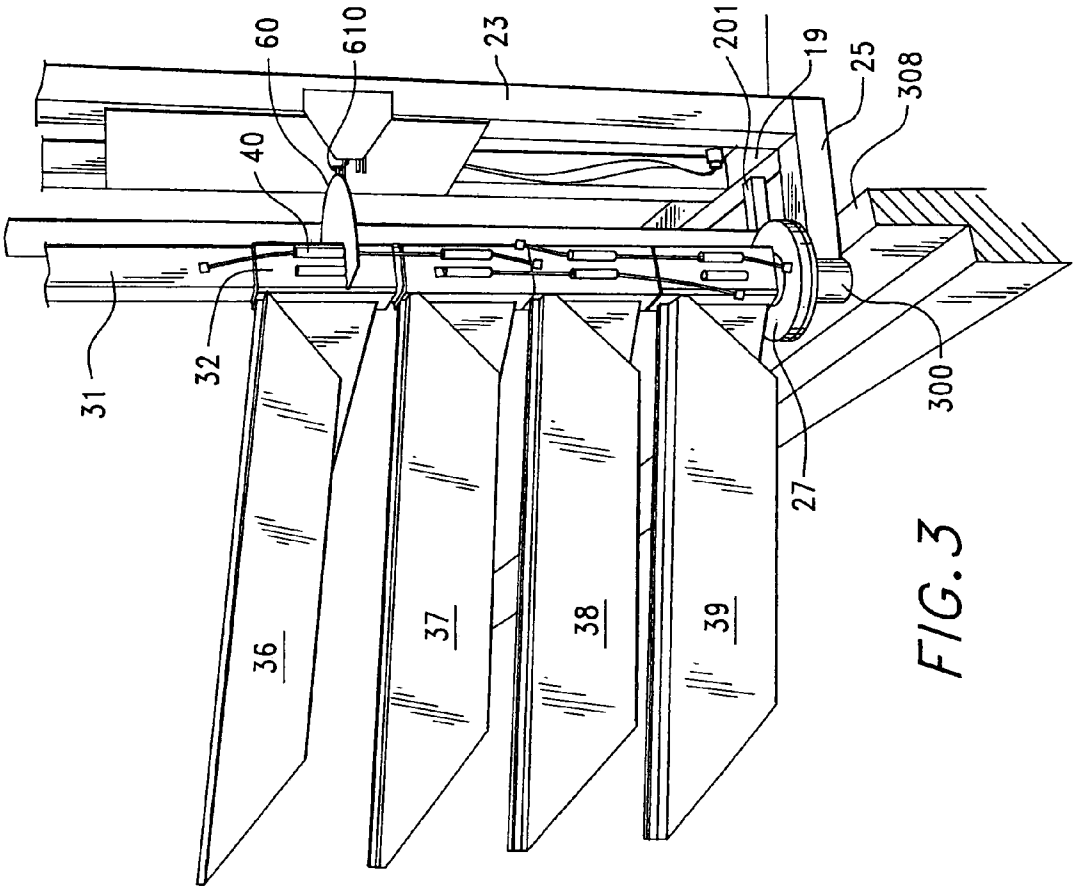


FIG. 12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610
23
201
19
25
308
40
31
32
300
27
36
37
38
39

FIG. 3

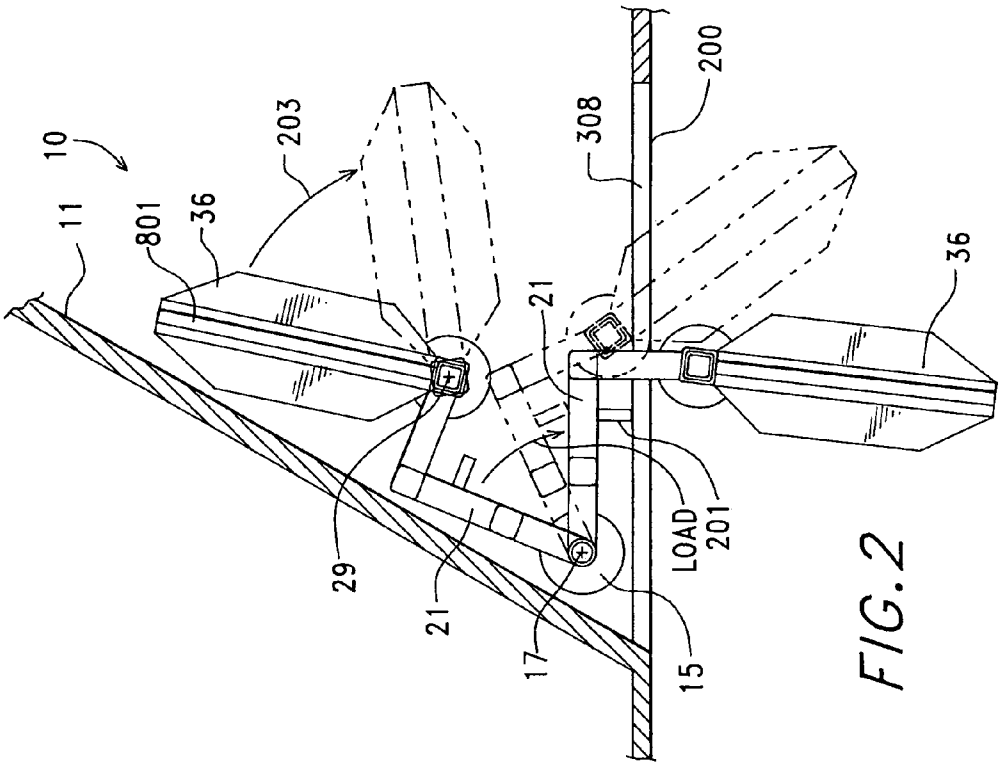

10
11
801
36
203
308
200
21
36
29
21
17
15
LOAD
201

FIG. 2

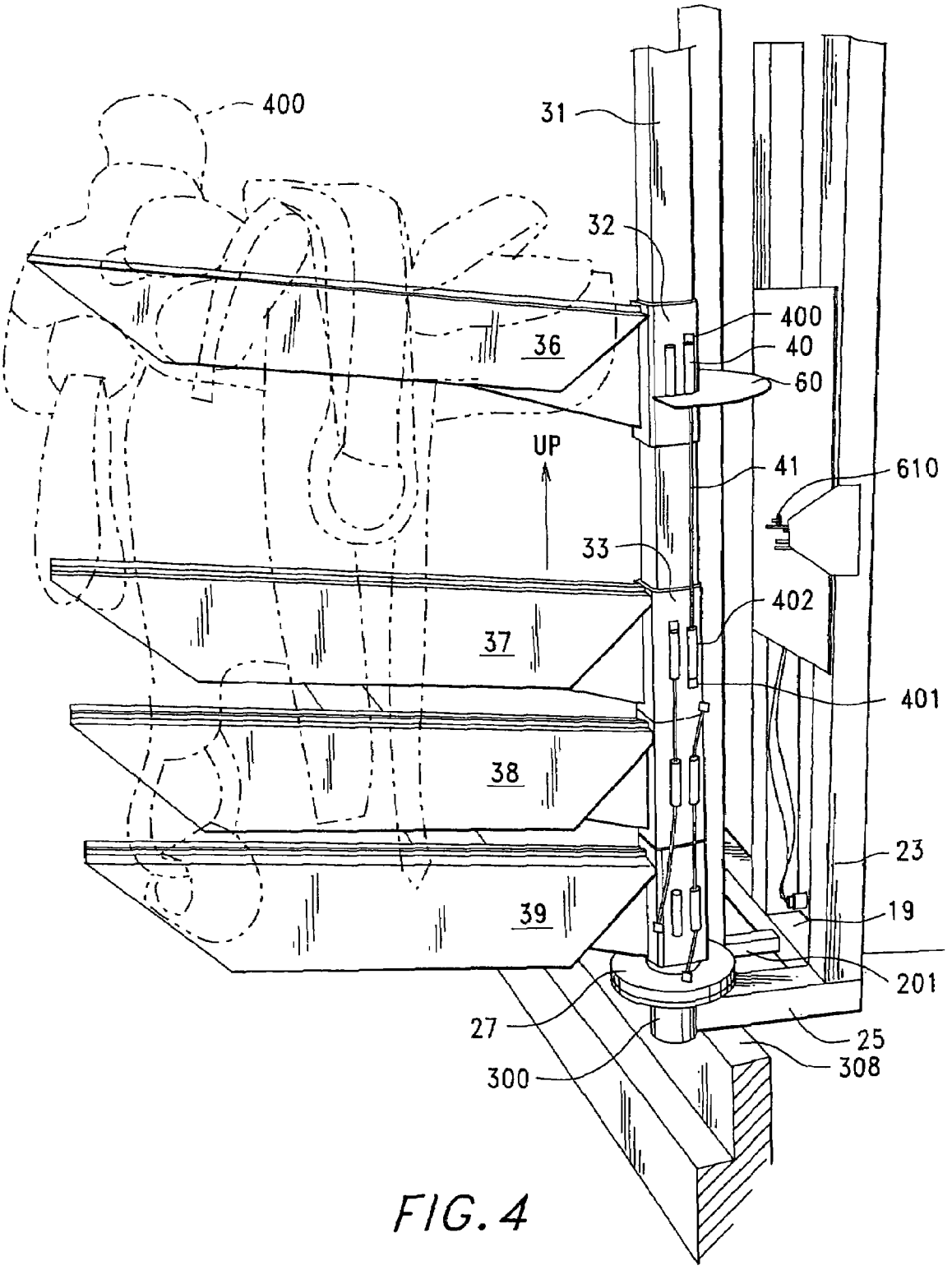
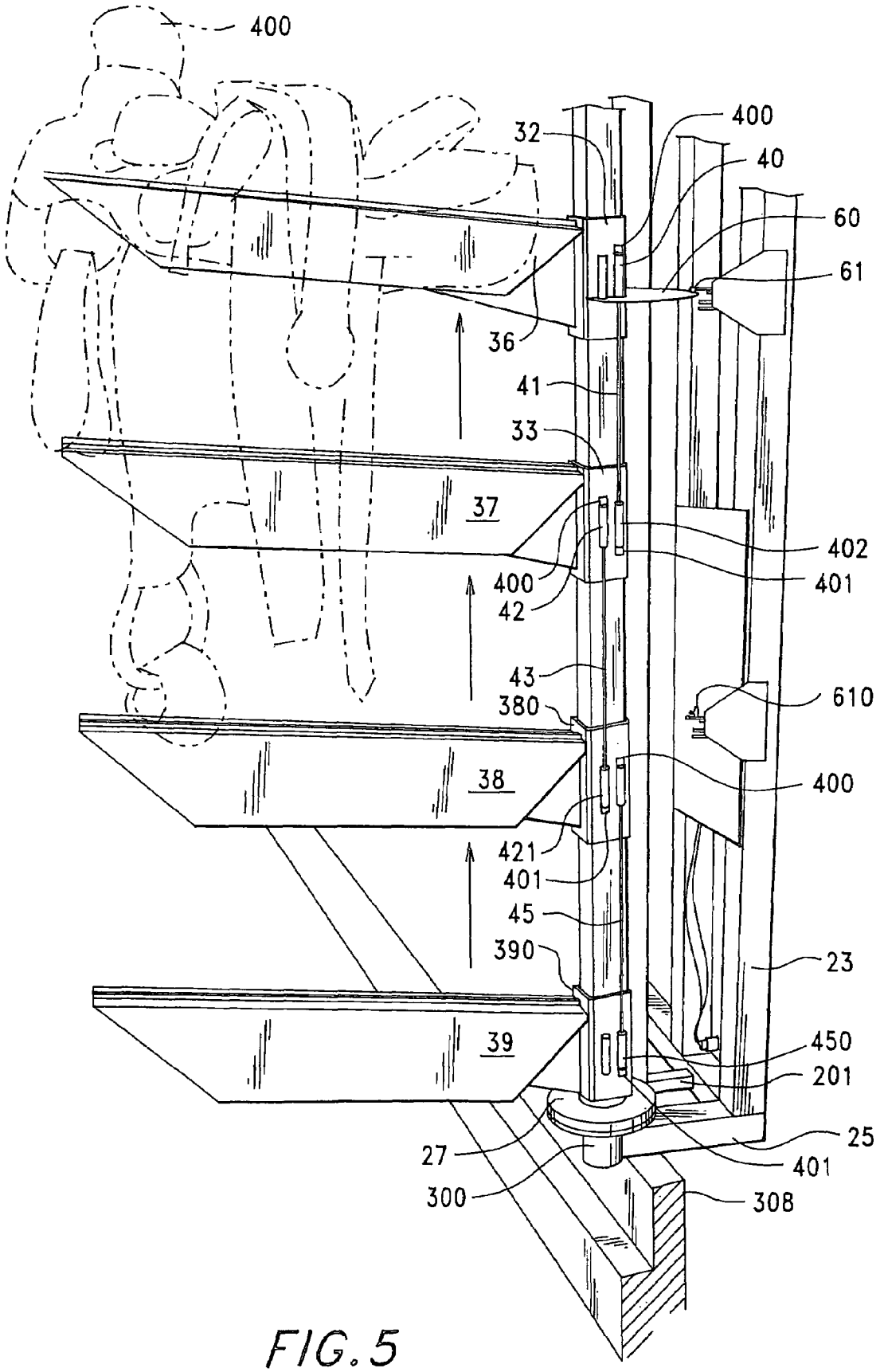

400
31
32
400
40
60
36
UP
41
610
33
402
37
401
38
23
39
19
201
27
25
300
308

FIG. 4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32
400
40
60
61
36
41
33
37
402
401
400
42
43
610
380
38
400
421
401
45
390
23
39
450
201
25
27
401
300
308

FIG. 5

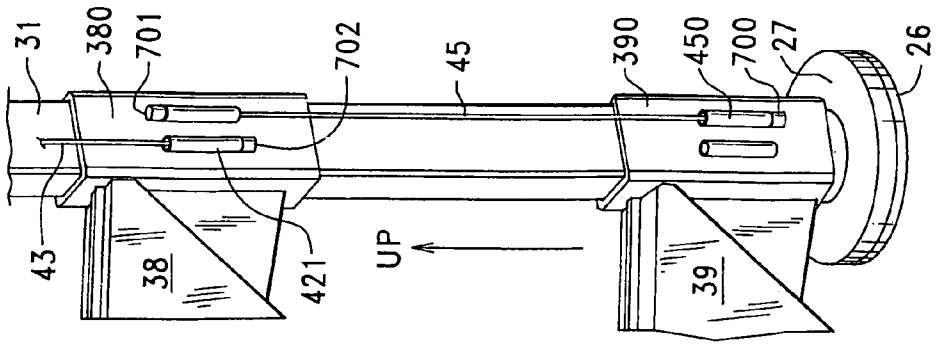


FIG. 8

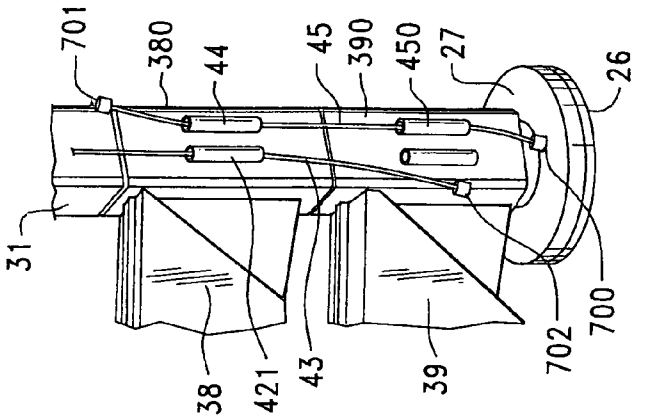


FIG. 7

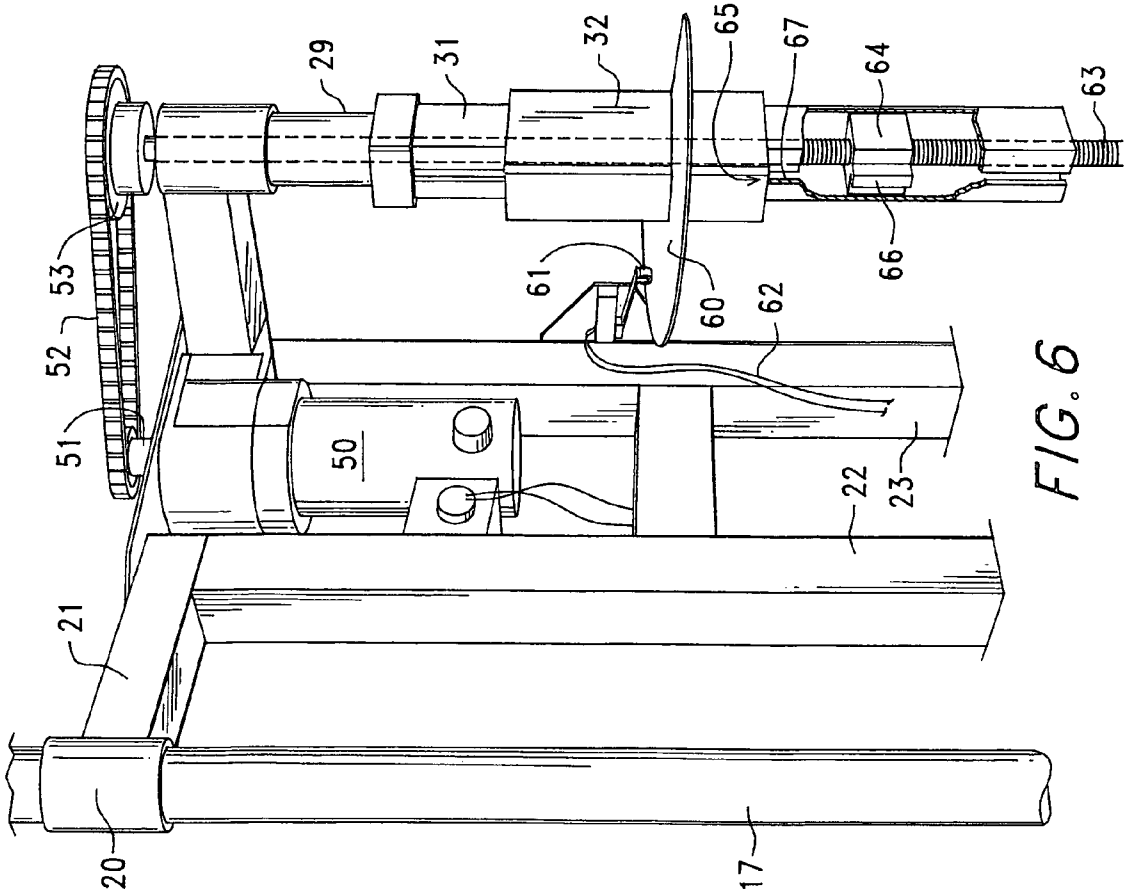


FIG. 6

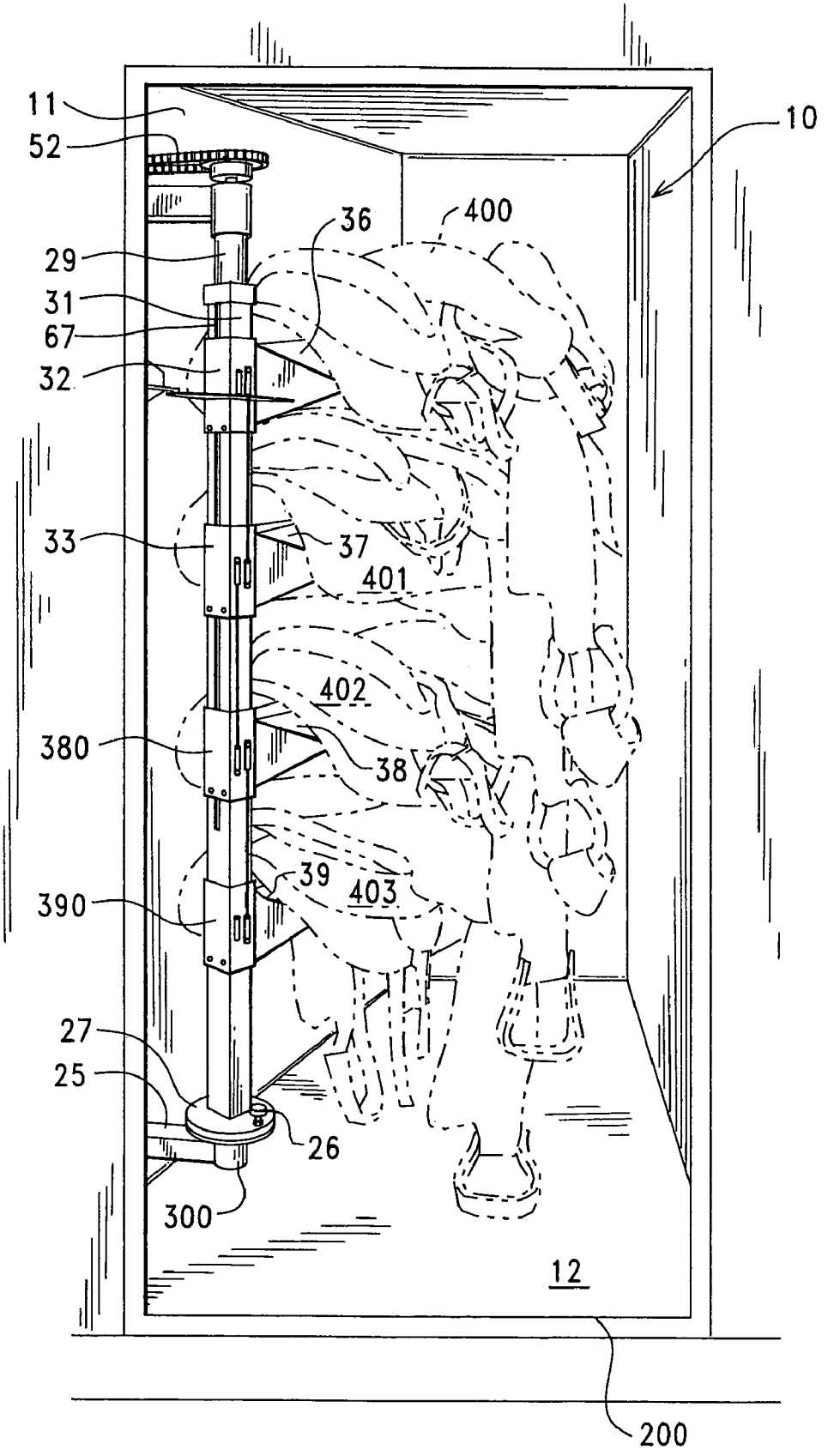

11
52
10
36
400
29
31
67
32
33
37
401
402
380
38
39
403
390
27
25
26
300
12
200

FIG. 9

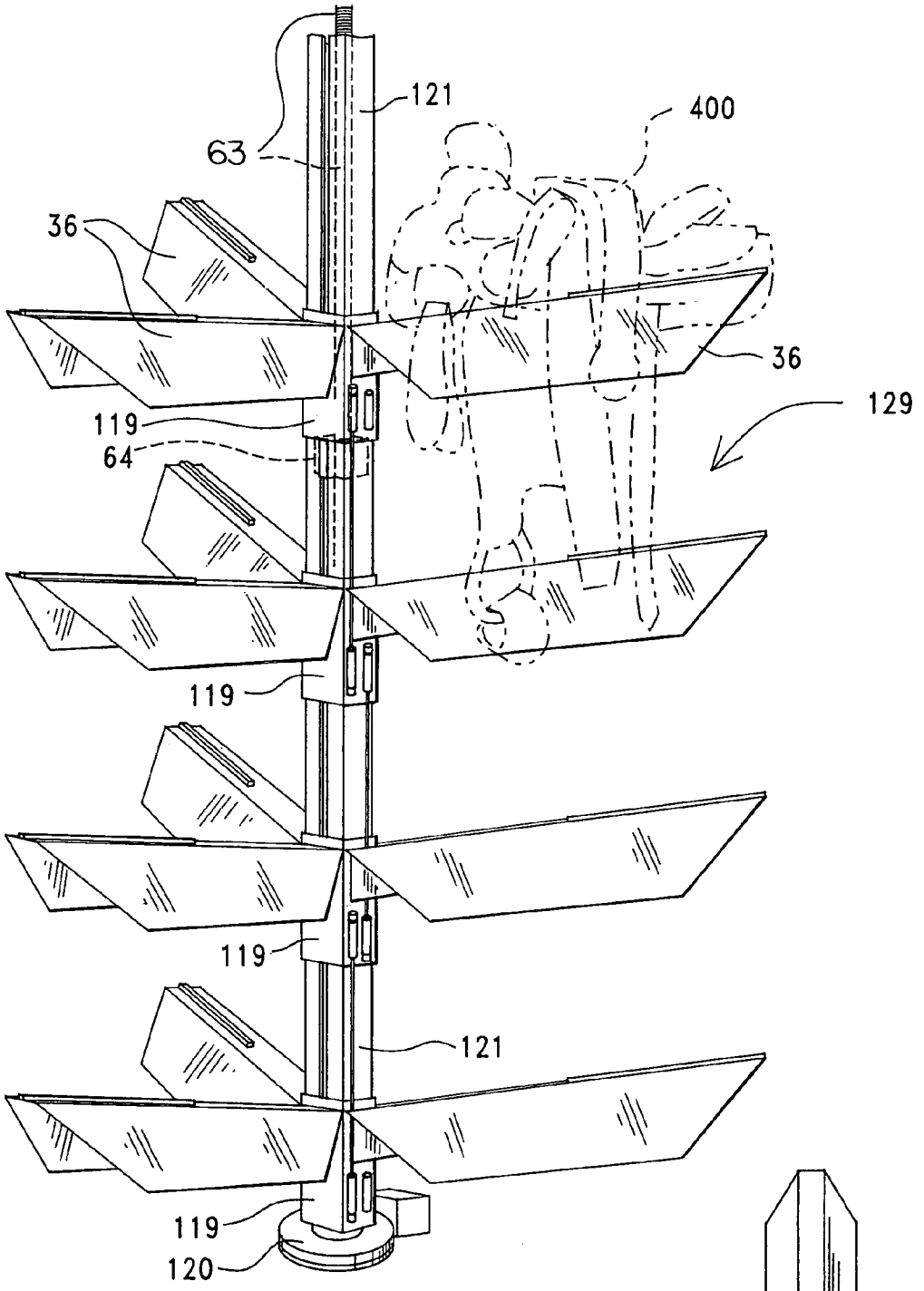


FIG. 10

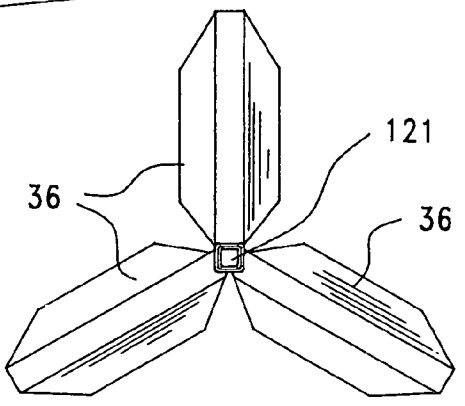


FIG. 11

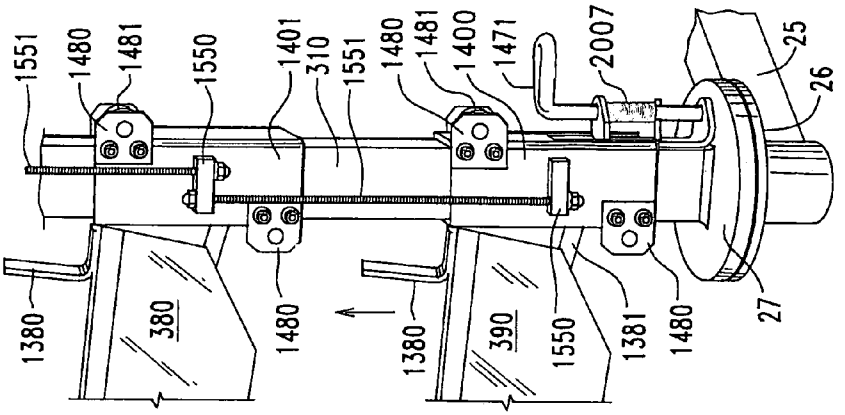


FIG. 15

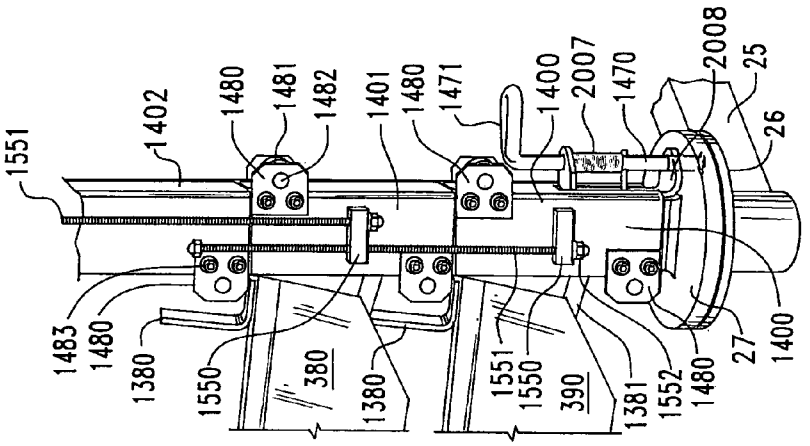


FIG. 14

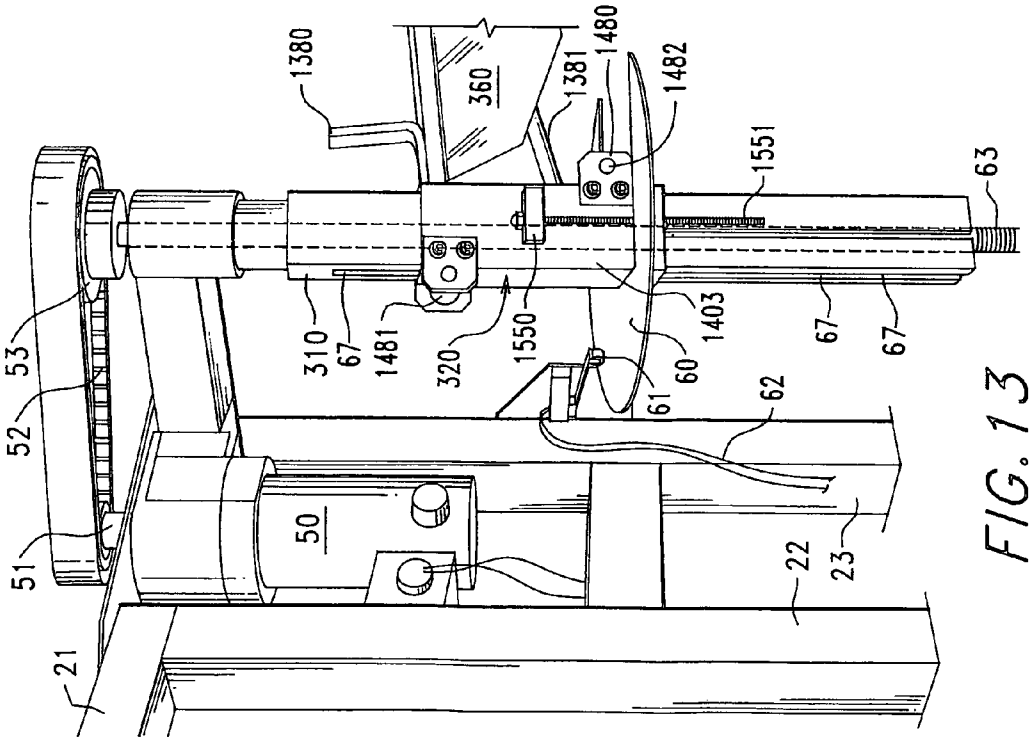


FIG. 13

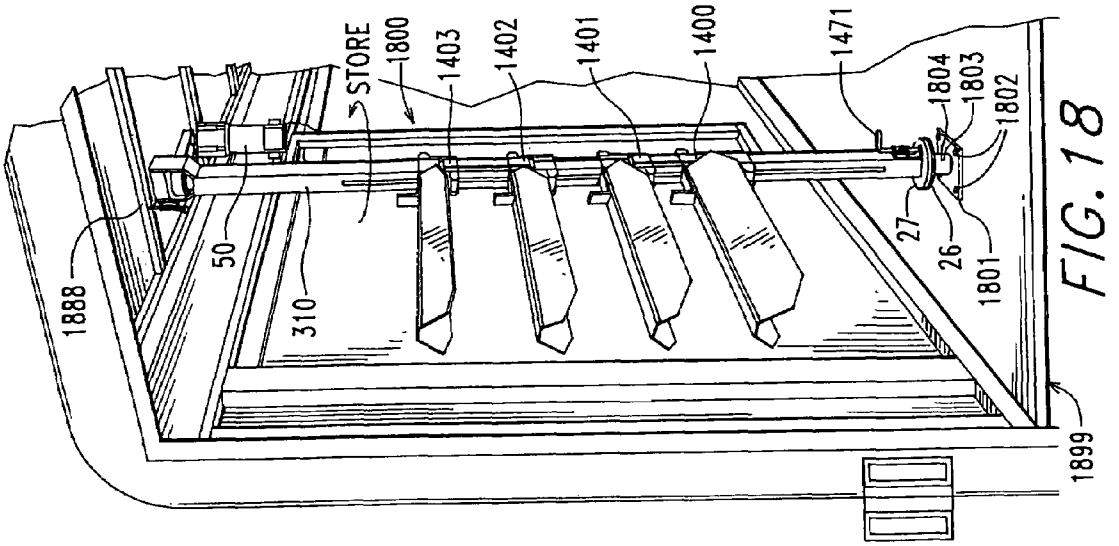


FIG. 18

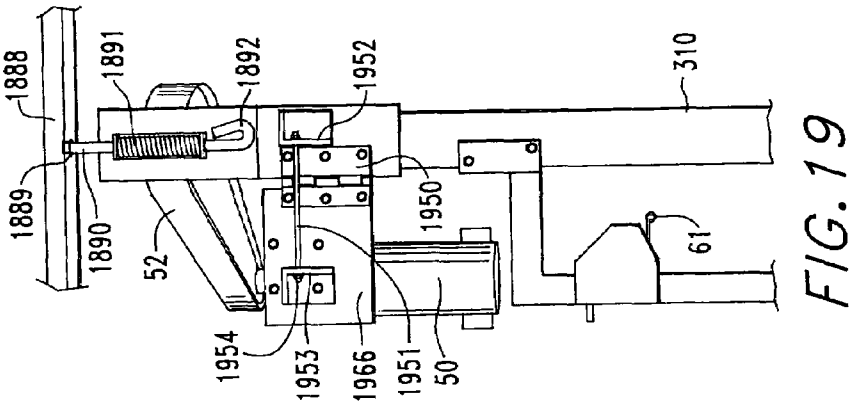


FIG. 19

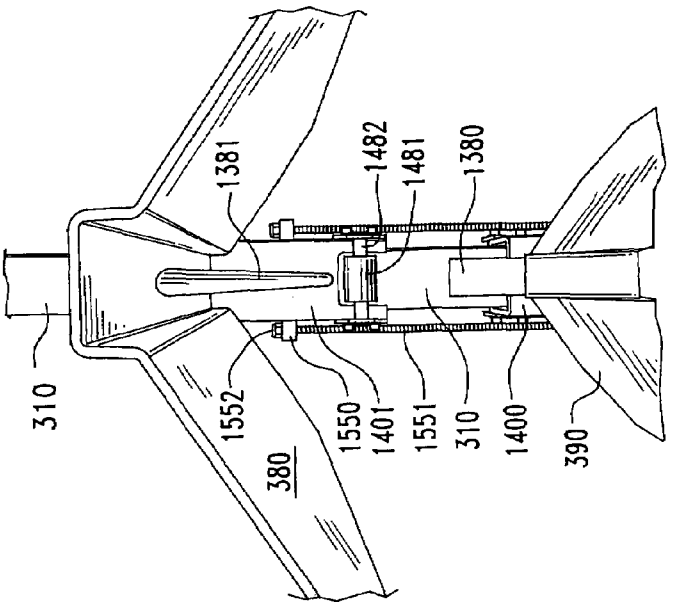


FIG. 16

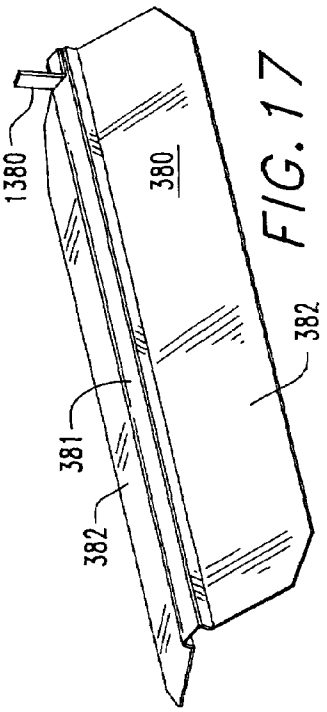
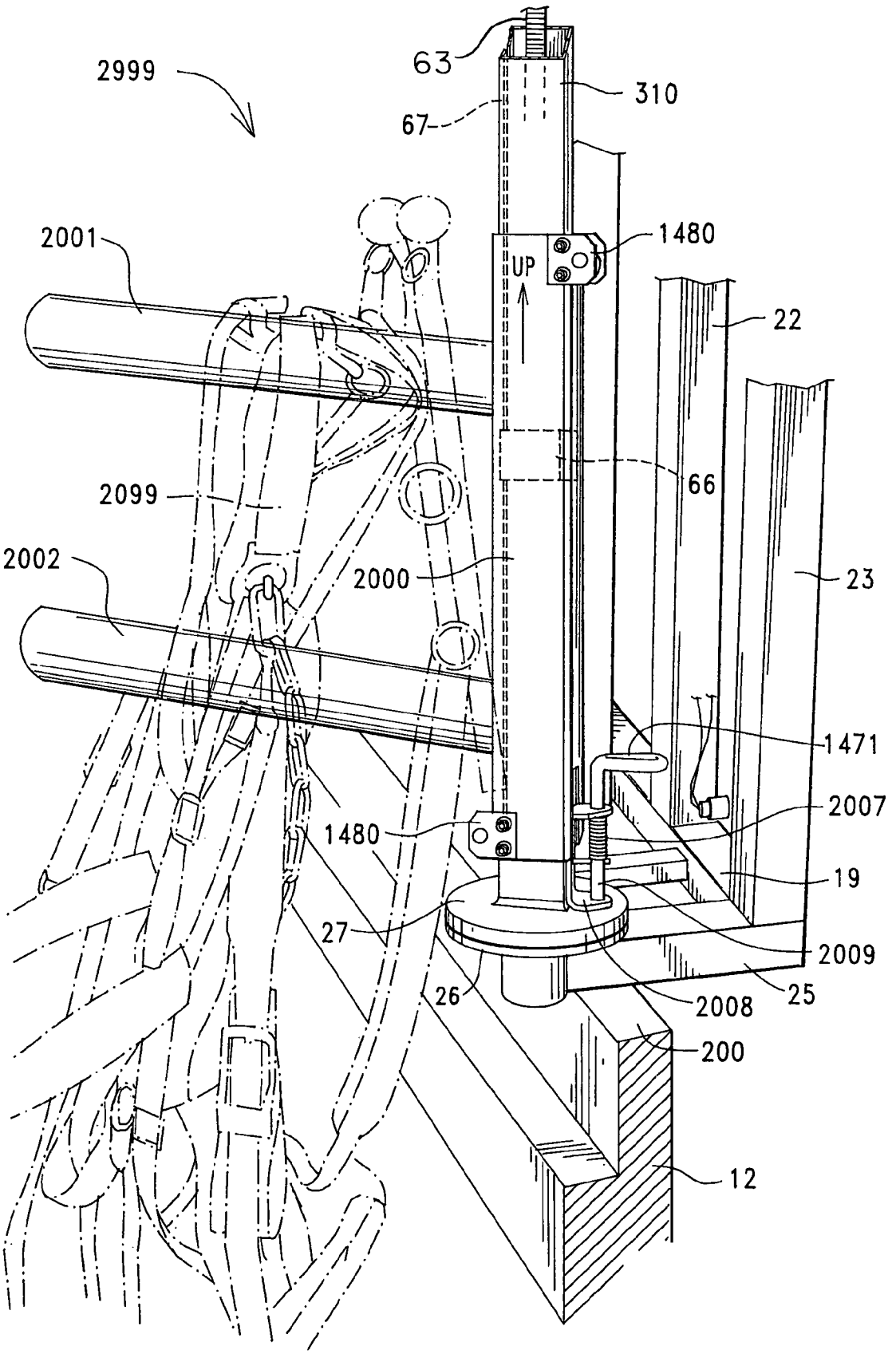


FIG. 17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63
310
67
2001
1480
UP
22
66
2099
2002
2000
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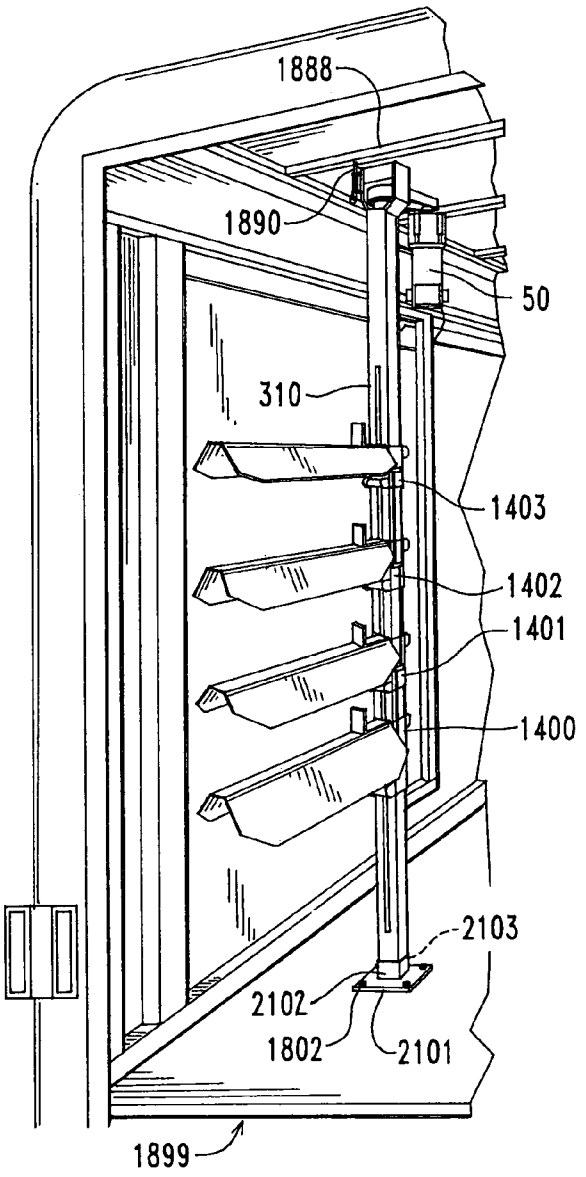
1471
2007
1480
19
27
2009
26
2008
25
200
12

FIG. 20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1890
50
310
1403
1402
1401
1400
2103
2102
1802
2101
1899

FIG. 21

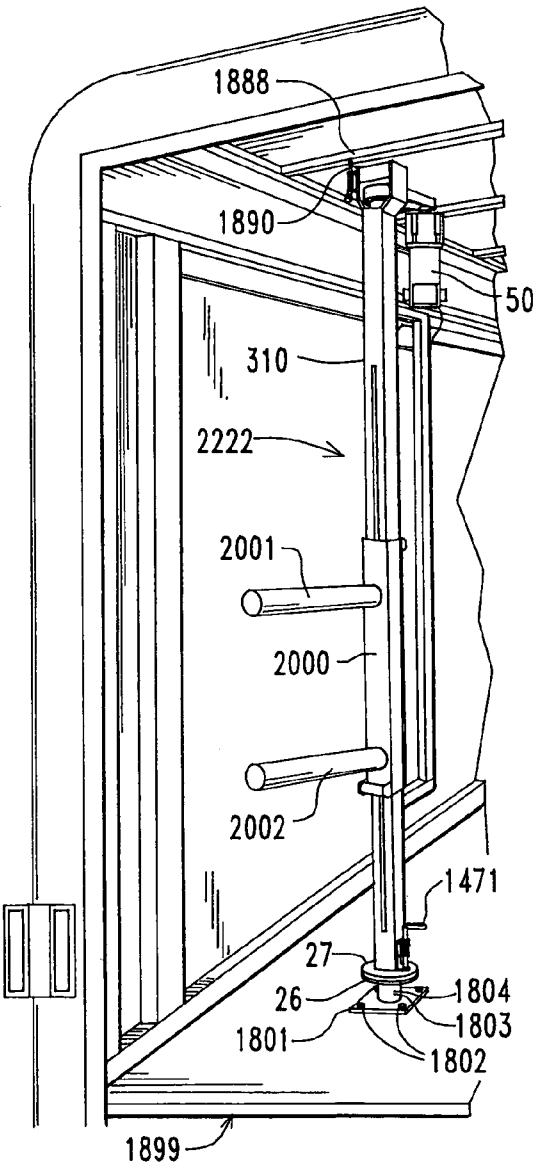
1888
1890
50
310
2222
2001
2000
2002
1471
27
26
1804
1803
1801
1802
1899

FIG. 22

SADDLE RACK AND HARNESS RACK LIFT

CROSS REFERENCE APPLICATIONS

This application is a non-provisional application claiming the benefits of provisional application No. 60/645,779 filed Jan. 21, 2005.

FIELD OF INVENTION

The present invention relates to providing a series of waist high saddle racks to accommodate easy loading, wherein each saddle can be raised/lowered on a pole for convenience of storage. Some models fit in a horse trailer, others in a store.

BACKGROUND OF THE INVENTION

Horse trailers can carry a tack room for transporting four or more saddles. FIG. **1**B (prior art) shows a horse trailer **1** having a tack room doorway **2**. A rear wall **3** has four permanently mounted saddle racks **4**, **5**, **6**, **7**. The horseman has to physically lift a saddle up onto racks **5**, **6**, **7** wherein rack **4** is about at waist height.

U.S. Pat. No. 3,294,267 (1966) to Schweigert discloses a tack room ceiling mounted saddle rack that provides the rack to slide outside the tack room door at about waist height for loading two saddles. No lifting of a saddle to a higher storage position is suggested in this nor any known prior art reference.

Below follows a brief description of the related art.

U.S. Pat. No. 2,809,755 (1957) to Martorello discloses a single saddle stationary rack bolted to a closet floor.

U.S. Pat. No. 3,294,267 (1966) to Schwiegert discloses two saddle racks mounted from a closet ceiling bracket, wherein the rack slides out of the trailer for loading.

U.S. Pat. No. 3,315,819 (1967) to Kingsbery discloses a tree stand for saddles.

U.S. Pat. No. 3,662,909 (1972) to Cherry discloses a ceiling mounted bracket which supports a slidable saddle rack.

U.S. Pat. No. 3,811,574 (1974) to O'Brien discloses a ceiling mounted bracket for a slidable saddle rack.

U.S. Pat. No. 5,362,078 (1994) to Paton discloses a hard truck and saddle stand combination.

U.S. Pat. No. 5,615,783 (1997) to Warnken discloses a fold out stationary saddle rack.

U.S. Pat. No. 6,189,706 (2001) to Akins discloses a stationary blanket rack.

U.S. Pat. No. 6,659,476 (2003) to Weida discloses a hard truck and rack combo.

U.S. Pat. No. Des. 42,635 (1912) to Lack discloses a stationary hanging rack.

U.S. Pat No. Des. 255,611 (1980) to Love discloses a hand truck and rack combo.

U.S. Pat. Pub. No. US 2004/0182803 Lay discloses a sliding wall mounted rack.

What is needed in the art is a mechanism to allow waist level loading of a saddle onto a rack, wherein the rack is then lifted up to a storage position, and then lowered when unloading is needed.

The present invention provides a motorized four or more saddle rack that allows loading four saddles at waist height. Each saddle after loading is raised up a pole that supports the rack. The racks can also pivot **1800** for storage in the tack room.

SUMMARY OF THE INVENTION

An aspect of the present invention is to provide in the preferred embodiment a mounting pole inside the doorway of a trailer tack room.

Another aspect of the present invention is to provide a pivotable rack lifting mechanism mounted to the mounting pole.

Another aspect of the present invention is to provide a sequential one rack at a time lifting sequence for the racks.

Another aspect of the present invention is to provide a retail store tree stand version of the invention.

Another aspect of the present invention is to provide a non-pivoting version of the lift.

Other aspects of this invention will appear from the following description and appended claims, reference being made to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

The lift assembly consist of a hollow tube having a powered, threaded bolt therein. A lifting nut raises/lowers a top rack collar that slides up and down the tube. Connectors couple each succeeding rack collar to one another. When the top rack collar raises a few inches it starts to pull the second rack collar up, and so on. The motor is geared to provide a relatively slow lift operation for two reasons. The first reason is safety so that workers do not catch their fingers in moving parts. The second reason is there exists a usual delay to fetch one saddle and then the next before loading is possible. Once the maximum number of saddles are loaded (four or more are possible), then the tube is pivoted inside the tack room for storage.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1**A is a side perspective view of the preferred embodiment trailer tack room mounted saddle rack. (prior art)

FIG. **1**B is a schematic view of a known four saddle tack room shelf.

FIG. **2** is a top plan view of the FIG. **1**A device in action.

FIG. **3** is a side perspective view of the FIG. **1**A device pivoted outside the tack room, ready to load the first saddle at about waist height.

FIG. **4** is the same view as FIG. **3** with the first saddle loaded and lifted.

FIG. **5** is the same view as FIG. **3** with the lift fully raised.

FIG. **6** is a perspective view of the motor, the tube and the top rack collar hitting the shut off switch.

FIG. **7** is a side perspective view of the bottom two rack collars nested on the bottom of the tube, showing the connecting lift wires.

FIG. **8** is the same view as FIG. **7** with the upper rack collar lifting the lowest rack collar via the connecting wire.

FIG. **9** is a side perspective view of four saddles stored on the device inside the tack room.

FIG. **10** is a side perspective view of a retail store tree type embodiment.

FIG. **11** is a top plan view of the FIG. **10** embodiment.

FIG. **12** is a side perspective view of a non-pivoting saddle rack lift device.

FIG. **13** is a side perspective view of an alternate embodiment saddle rack collar assembly having rollers.

FIG. **14** is a close up side perspective view of the FIG. **13** embodiment.

FIG. **15** is the same view as FIG. **14** with the saddle racks raised up.

FIG. **16** is a front plan view of the roller of FIG. **13**.

FIG. **17** is a top plan view of an alternate embodiment saddle rack.

FIG. **18** is a front perspective view of an alternate embodiment rack system.

FIG. **19** is a close up side plan view of the FIG. **18** embodiment.

FIG. **20** is a side perspective view of a harness storage assembly.

FIG. **21** is a front perspective view of a non-rotatable embodiment of a saddle rack.

FIG. **22** is a front perspective view of a removable harness storage assembly.

Before explaining the disclosed embodiment of the present invention in detail, it is to be understood that the invention is not limited in its application to the details of the particular arrangement shown, since the invention is capable of other embodiments. Also, the terminology used herein is for the purpose of description and not of limitation.

DETAILED DESCRIPTION OF THE DRAWINGS

Referring first to FIGS. **1**A, **6** a trailer tack room **10** has a floor **12** and left side wall **11**. The saddle lift **1000** has an anchor **13** fastened on the floor **12**. The anchor **13** supports a stationary tube **17** which has a lower collar **18** welded to a flange **15** that rotates. The anchor **13** has an upper flange **14** with locking holes to accept locking pin **16**, thereby locking the horizontal braces **19**, **21** at a desired position along the arc shown by arrows load and store. Ceiling anchor **805** supports a support rod **806** which keeps tube **17** stationary.

The tube **17** collars **18**, **20** rotate around tube **17** and support horizontal braces **19**, **21** which support vertical frame posts **22**, **23**. Brackets **24**, **25** are set at an approximate 90° angle to their respective support brackets **21**, **19** in order to further support a rotatable tube **29** via collars **30**, **300**. Collar **300** has a flange **26** with holes to accept locking pin **28** on flange **27** to provide a desired rotational angle for the tube **29**.

A square strut **31** is connected to the tube **29**. A slot **67** in the strut **31** allows the tooth **66** of lifting nut **64** to lift the upper rack collar **32** at point **65**. A threaded bolt **63** is powered by bi-directional motor **50** via gears **51**, **53** and chain **52**. In FIG. **6***a* micro switch **61** has been contacted by upper rack collar flange **60**, thereby stopping motor **50** via wires **62**. In FIG. **1**A flange **60** has shut off motor **50** by contacting micro switch **610**. Up/Down switch **70**, and on/off switch **71** control the motor **50**.

The upper rack collar **32** supports saddle rack **36**. A tubular stop **40** raises the head **400** of cable **41** as the upper rack collar **32** is powered upward. The head **401** of cable **41** locks against tubular stop **402** on rack collar **33** thereby lifting rack collar **33** up with rack collar **32**. In a like manner the rack collars **380**, **390** are lifted by locks **42**, **421**, **44**, **450** and cables **43**, **45**. As the motor **50** is reversed to lower lifting nut **64**, the cables **41**, **43**, **45** lower their respective rack collars.

Saddle racks **36**, **37**, **38**, **39** are supported by the respective rack collars **32**, **33**, **380**, **390**. Friction reducing screws **800** (preferably nylon) provide sliding friction reduction between the rack collars and the strut **31**. The raised brace **801** prevents the saddle from slipping sideways.

Referring next to FIGS. **7**, **8** rack collar **380** is seen lifting lowermost rack collar **390** via head **700** locking into tubular lock **450** via cable **45**. Arrow UP shows how cable **43** is lifting rack collar **380** via head **702** locking into tubular lock **421**.

Referring next to FIG. **2** horizontal brace **21** has been moved away from wall **11** in the load direction until stop **201** hits a door jam at door **200**. Either before or after the rotation of horizontal brace **21**, the saddle rack **36** along with all the saddle racks beneath it may be rotated to the load/unload position indicated by arrow **203**. The dotted outlines show the respective members in movement. Clearly a mirror image of the system could be used for a right hand hinged door.

Referring next to FIG. **3** the door jam **308** has stopped the stop **201**. The saddle racks **36**, **37**, **38**, **39** are ready for loading, wherein the first saddle is loaded on saddle rack **36** at about waist height.

Referring next to FIG. **4** saddle **400** is now lifted UP enough to load the next saddle (not shown). Cable **41** is starting to lift rack collar **33** via locks **40**, **402** and cable heads **400**, **401**.

Referring next to FIG. **5** in operation a saddle would normally have been loaded on upper three racks **36**, **37**, **38**. Saddle rack **39** would be ready to load. The designer can choose how high and/or whether to lift saddle rack **39** via cable **45**. Clearance for a saddle is needed above the floor **12**.

Referring next to FIG. **9** form saddles **400** to **403**. are now loaded on saddle racks **36-39**. Pin **28** has locked the square strut **31** in the storage position.

Referring next to FIGS. **10**, **11** the retail store saddle lift **129** has an anchor **120** connected to the floor. The square strut **121** functions the same as strut **31** of FIG. **1**A. Each rack collar **119** supports three (or from 2-4) saddle racks **36**. The same lifting nut **64** raises/lowers the uppermost rack collar. The tubular cable locks and cables and groove not seen as they are in the rear.

Referring next to FIG. **12** a non-pivotable saddle lift **1250** can be mounted against any wall **1205**. An anchor **1200** and a brace **1201** support the square strut **31**. The functionality of the system **1000** of FIG. **1**A is the same, except strut **31** remains fixed.

Design choice can be used to power the various motors which could be DC motors for trailer systems, and AC motors for room systems.

Referring next to FIGS. **13**, **14**, **15**, **16**, **17** a roller based upper rack collar **320** has a square strut **310** with a vertical slot **67**. The lifting nut **64** is the same as shown in FIG. **6** as is the slot **67** to accommodate the tooth **66** of nut **64**. FIG. **14** shows a lowest collar **1400** resting at the base of the square strut **310**. The flange **27** has a hole (not shown) through which the lowest end **1470** of the locking pin **1471** fits. The end **1470** then locks into a hole (not shown) in the base flange **26**. Thus, flange **27** can rotate the square strut **310** to a desired load/unload position.

The collar **1409** has a pair of roller brackets **1480**, wherein each roller bracket **1480** has a roller **1481** supported by an axle **1482**. Locking nuts **1483** secure the bracket **1480** to the rectangular strut **310**.

The top collar **1403** is lifted by nut **64** as in FIG. **6**.

An anchor **1550** secures a rod **1551** via a nut **1552** in order to lift the next lowest collar **1402** by its anchor **1550**, and this arrangement is repeated to lift lower collars **1401**, **1400**.

The collars **1400-1403** each have an upper saddle stop **1380**. These stops **1380** brace the saddle and serve to support the collar above it against a support rod **1381**, thereby preventing adjoining collars from banging against one another and/or pinching a finger between collars. About a one quarter inch gap remains between the collars when they are stacked upon each other.

Arrow UP in FIG. **15** shows the collar **1401** pulled up by its anchor **1550** via rod **1551**. The saddle racks themselves (**380**, **390**, **360**) have stops **1380**, a central ridge **381**, and support arms **382**.

Referring next to FIGS. **18**, **19** a lower cost saddle rack **1800** doesn't have the members **13**, **14**, **15**, **16**, **18**, **19**, **25** of FIG. **1**A. The FIGS. **13-17** members **310**, **1400-1403**, **26** and

27 are shown supported by a large plate **1801** with removable screws **1802**. A support collar **1803** receives the post **1804** under flange **26**. Thus, square strut **310** can be rotated toward the entry door **1899** as shown, and rotated per arrow STORE back away from the entry door **1899**.

FIG. **19** shows how the whole assembly **1800** can be quickly removed. A locking pin **1890** is spring loaded on strut **310** via spring **1891**. FIG. **19** shows the pin **1890** locked into hole **1889** in ceiling support tube **1888**. Pulling pin **1890** from hole **1889** allows assembly **1800** to be lifted out of support collar **1803**.

The tension of chain **52** can be adjusted by adjusting nuts **1954** on all thread rod **1951**, then swinging hinge **1950** to move the motor mount **1966**. Finally the nuts **1954** are locked against anchors **1952**, **1953**.

Referring next to FIG. **21** the saddle rack **2100** is identical to rack **1800** of FIG. **18** except it does not swivel. Base plate **2101** has a collar **2103** that receives the bottom end of strut **310**. The same pin **1890** allows the rack **2100** to be removed.

Referring next to FIG. **20** a harness rack **2999** is shown mounted by the door ledge **200** of a trailer **12**. See FIG. **1**A for analogous parts. The spring **2007** and locking pin **1471**, allow the strut **310** to rotate as shown in FIGS. **14**, **15**.

The strut **310** supports one collar **2000** with roller brackets **1480**. Two posts **2001**, **2002** are supported by the collar **2000**. They each can carry a harness **2099** and lift them UP for storage via nut **64** and tooth **66** as in FIG. **6**.

Referring next to FIG. **22** a removable harness rack **2222** has the combined mounting elements of the embodiment of FIG. **18** and the collar **2000** of FIG. **20**.

Although the present invention has been described with reference to preferred embodiments, numerous modifications and variations can be made and still the result will come within the scope of the invention. No limitation with respect to the specific embodiments disclosed herein is intended or should be inferred. Each apparatus embodiment described herein has numerous equivalents.

I claim:

1. A saddle rack system comprising:

a first vertical support strut having an anchor means functioning to provide a base anchor for mounting on a floor;

wherein the strut can rotate in the base anchor;

a horizontal brace means attached to the first vertical support strut functioning to support a second vertical support strut having a drive means functioning to raise and lower at least one rack collar which supports a saddle rack; and

wherein a user can rotate the first vertical support strut to a desired load position away from the base anchor then rotate the second vertical support strut to a desired load position, further away from the base anchor then load a saddle onto the saddle rack, then raise the saddle using the drive means, then return the first and second vertical support struts to a storage position.

2. The system of claim **1**, wherein the anchor means further comprises a pair of interconnected flanges.

3. The system of claim **1**, wherein the second vertical support strut further comprises a second pair of interconnected flanges mounted on the horizontal brace means.

4. The system of claim **1**, wherein the drive means further comprises a motor turning a threaded rod inside the second vertical support strut, wherein a lifting nut on the threaded rod is raised and lowered, said lifting nut having a connection to the saddle rack.

5. The system of claim **4** further comprising a plurality of rack collars stacked above each other and having a linkage means functioning to pull each lower rack collar up by the adjacent upper rack collar.

6. The system of claim **5**, wherein the linkage means further comprises an anchor on each saddle rack and an interconnected linkage between each set of adjacent anchors.

7. The system of claim **5**, wherein the linkage means further comprises an anchor on each saddle rack and a rod slidably engaged between adjacent anchors.

8. The system of claim **1**, wherein the rack collar has a limit switch contact to throw a limit switch to control the drive means.

9. The system of claim **4**, wherein the connection to the saddle rack further comprises a tooth on the lifting nut which engages the rack collar.

10. The system of claim **5**, wherein each saddle rack has a stop to support the adjacent top saddle rack thereon in a load mode.

11. The system of claim **5**, wherein each rack collar has a roller to engage the second vertical support strut.

12. The system of claim **4**, wherein the motor further comprises a sprocket for a chain connected to a sprocket on the threaded rod, said motor having a mount to the horizontal brace means.

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